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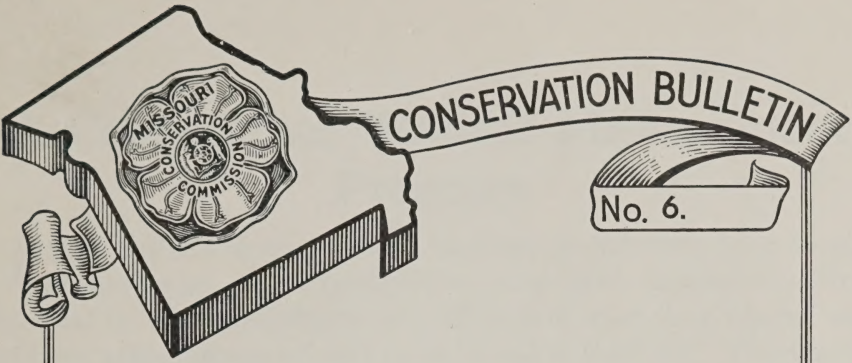

CONSERVATION BULLETIN

No. 6.

A Cooperative Wildlife Management Program

STATE OF MISSOURI
THE CONSERVATION COMMISSION
JEFFERSON CITY, MISSOURI

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A Cooperative Wildlife Management Program

THIS bulletin is prepared in response to inquiries from many farmers and other landowners who have expressed active interest in the conservation of wildlife and who have offered use of their properties as refuges to be closed to shooting. It explains the Cooperative Wildlife Management Program offered by the Conservation Commission and recommended for adoption by organizations of farmers and sportsmen.

Particular emphasis is placed on the advantages and limitations of refuges for wildlife, not because the Commission believes that refuges are the most important part of game management programs but because the demands for cooperation and service for refuge purposes are most pressing at this time. The conditions under which refuges may be established as part of a comprehensive wildlife management program have been defined in an effort to organize the services which the Commission is prepared to offer so as to serve the greatest number and to avoid a waste of effort or funds.

COMMISSION OBJECTIVES IN WILDLIFE CONSERVATION

The objective of the Commission is not only to protect and increase valuable wildlife, but also to make it available for reasonable use.

Farm lands in the state produce enough game each year to meet all reasonable requirements with no cost for production, but only a small part of this is harvested. Yet, the state is not overrun with game, because each year a large part of this surplus game crop is lost simply because the annual production is not cared for. That is the reason why the Commission believes that the sanest investment of its public funds is in the kind of work which will save this production in the wild and make it available for conservative use.

A reasonable amount of shooting or other harvesting is a proper part of a conservation program and does not affect the future supply harmfully if proper measures are taken to keep up the breeding stock. The objective, therefore, should be not to stop shooting, but to regulate it so that only a portion of the annual crop is harvested.

This objective may be accomplished in part by the establishment of refuges which serve to carry safely through the late fall and winter months the breeding stock needed to repopulate the surrounding area the following year. The effectiveness of such a refuge, however, is determined largely by the character of the surrounding area and the attention which is given to caring for the annual crop.

Other types of refuges may be needed, as for certain rare or vanishing species and for special purposes. In general, however, it would be contrary to the objectives of the Commission and to the best interests of conservation to create a refuge for game unless it would serve to make more game available for reasonable use on other adjoining lands.

Cooperation Offered by Commission:

The Commission is prepared to cooperate in the establishment of refuges provided they are part of a comprehensive wildlife management program embracing a large area, preferably an entire county or at least one or more townships as the Commission may determine. The program should provide for the adoption of simple wildlife management practices on the lands surrounding the refuges and for conservative harvesting of the annual crop.

The success of this program depends entirely upon cooperation by the several interests concerned and upon the co-ordination of all related activities. It is essential, therefore, that the program be sponsored by an organization which represents all of those interests in a large area, preferably a county, either through its membership or through a co-ordinating committee composed of delegates from other organizations.

The Commission is prepared to assign an experienced field worker to assist county groups in organizing programs with coordinating units and subcommittees and in suggesting the procedures which have been found to be most effective.

The Wildlife Conservation Agents in their respective districts also are authorized to assist such sponsoring organizations in the preparation of tentative programs. An experienced Field Biologist will be available to assist in working out the details of a practical program which will meet local requirements as well as certain standard requirements of the Commission and to inspect each property included in the plan to determine the game management practices which should be applied.

The Commission, through its Forestry Section, offers to supply certain tree-planting stock at cost and to cooperate in the organization of wildfire protection districts, particularly in the Ozark region.

The sponsoring organization is expected to prepare and promote a comprehensive program of wildlife management for the entire area with which it is concerned, designed particularly to increase the supply of game in that area, which program should include plans for:

> (1) establishing refuges to be closed to shooting for the purpose of protecting the breeding stock needed to repopulate surrounding farms each succeeding year, or for certain other special purposes.
>
> (2) encouraging the adoption of management practices for the improvement of wildlife environments where needed on the refuges and on other lands in the vicinity of refuges.
>
> (3) protecting farmers against the damage and abuses which they have suffered at the hands of thoughtless and lawless hunters, thus giving the farmers an incentive to have more game and to permit reasonable shooting on their farms.

Property owners wishing to cooperate in this program should contact the officers of whatever organization represents the conservation interests in the locality or in the county, to request that their farms be included in the survey and be considered for whatever use they are best adapted. Information regarding such organizations will be supplied by the Conservation Commission or by the District Wildlife Conservation Agent.

The Commission hopes that by offering its services in planning a comprehensive wildlife management program for each county where the sportsmen and farmers are willing to make an earnest effort to cooperate and to find a satisfactory solution of their related problems, it may encourage a better understanding between these groups to the end that the interests of both may be served and wildlife made abundant once more.

REFUGES AS PART OF A WILDLIFE PROGRAM

The Conservation Commission believes that under certain conditions refuges may be helpful in conserving and restoring game and should be considered as a part of a wildlife management program for any large area. If locations are selected wisely and if the areas are well protected, the Commission offers to cooperate in establishing properly managed refuges to serve the following useful purposes:

Sanctuary for Rare or Vanishing Species:

The selection of refuge areas for rare or vanishing species, such as prairie chicken or ruffed grouse, should be determined by the presence of the species under consideration in sufficient numbers to justify a reasonable expectation that the species will be able to increase its numbers on the area, or at least to maintain its present status.

Small Refuge for Farm Game:

Small refuges for farm game to be established under this plan are intended to furnish protection and sustenance to the breeding stock needed to repopulate surrounding lands. The areas selected should provide all the essential requirements for the species considered during the fall (shooting season) and winter months. Benefits are derived from a natural spreading out from winter headquarters. The plan is applicable to the conservation of farm land species with limited range, such as quail.

The number of refuges and the selection and size of each one needed can be determined only by a survey in each case. The size of such refuges will vary with soil types and cover conditions. As a rule, in the soil types which are best adapted for quail, such refuges should comprise from five to not more than fifty acres. Better results may be expected from many small refuges than from a few large refuges which are apt to include substantial portions not adapted for the purpose and which might serve a better use if kept open to conservative shooting.

Large Refuge for Farm Game:

As a general policy for the present, the Commission is prepared to cooperate in the establishment of not more than one large refuge for small farm game in each county. Exceptions may be made in special cases when more than one large refuge is clearly needed to serve some special purpose.

The large refuge should be carefully selected as to location in the county as well as to its suitability for use as an area where the findings of research programs may be applied, tested and demonstrated. The area selected should furnish suitable conditions for small game throughout all seasons of the year. The benefits to be derived depend on live trapping the surplus crop each year and redistributing it to other areas. Such large refuges, which should serve also to test and demonstrate wildlife management practices, should be developed and improved more intensively than is to be expected or required of smaller areas.

The standard agreements with property owners on such areas include the provision that when the game supply has been increased, by management, to the full capacity of the area, and it is found that it tends to remain within the refuge without further increase and without spreading out to restock a correspondingly large surrounding area, a conservative portion of subsequent annual crops may be trapped alive and removed from the large refuge for restocking other areas.

Large Refuge for Special Purposes:

The Commission is prepared to cooperate in the establishment of large refuges for special purposes when it has been determined by a survey that the area proposed as a refuge is well adapted for the species which it is intended to serve. The location and size of such refuges will vary with the objective and the conditions in each case.

The principal use of large refuges, except in the Ozark region, will be for resting and feeding areas for waterfowl, which may be used also by fur-bearers and as breeding areas with many den trees for raccoons. In the Ozark region, which now constitutes the principal range for turkeys and deer, large refuges well distributed and carefully selected offer a practical means of protecting breeding stock and increasing the supply of turkeys and deer.

Refuges for turkeys and deer to be established in the Ozark region should comprise not less than 5,000 acres, preferably 10,000 acres or more. The general plan is to establish a central area of at least 5,000 acres to be developed intensively as by the control of fire and grazing and by the improvement of food and cover. The central area to be surrounded by a buffer zone, with property owner cooperation regarding law enforcement and fire control but without intensive development of food and cover.

The objective of this management plan is to attempt to hold a breeding stock of turkeys or deer within the central zone. The purpose of the buffer zone is to give the breeding stock protection whenever they range outside the central zone. Because of the wide ranging habits of turkeys and deer, the large refuge should serve to stock the surrounding area. It may be advisable to adopt some method of recording and regulating the kill on the surrounding area so that only the safe annual surplus crop will be harvested by shooting.

The establishment of such large refuges is not an easy task and should not be undertaken hastily or without careful planning of all details. In many cases a refuge for turkeys and/or deer cannot be effective unless the central area is surrounded with a stock-proof fence, which involves a considerable expense. The landowners within the refuge and within the vicinity of it should be organized also under the terms of the co-operative program for wildfire control offered by the Commission. Further information about co-operative wildfire control will be supplied on request.

LIMITATIONS OF REFUGES

Refuges appeal to many as the most simple and logical method of conserving game. The very popularity of the plan constitutes its greatest weakness. The posting of one property leads to the posting of others, which tends to destroy the value of the one and to increase the difficulty of protecting all.

Dangers of Promiscuous Posting:

Posters alone do not make a refuge, nor do they furnish protection in themselves. As a rule, "No Trespassing" signs posted by the property owner are disregarded by the same lawless element which caused damage and prompted the posting. They are observed only by those who respect the wishes of the landowner and who, consequently, would cause no damage and might have a restraining influence on others.

The promiscuous use of unenforceable posters is distinctly harmful to the public interest, as well as to the interests of wildlife, because it leads directly to a disregard of all posters and subsequently to a disrespect for laws and regulations.

Refuges Without Management May Be Ineffective:

When a refuge is established and kept inviolate, it may serve only to eliminate whatever influence shooting may have had in reducing the season's crop of game in the fall when the capacity of the area to support game is at its peak. As the winter advances, the supply of food and cover is reduced and the game-carrying capacity of the area is correspondingly decreased. The game crop is then reduced either by predators which are attracted to the refuge, because of the relative abundance of their natural food, or by other normal influences, including unfavorable weather conditions and disease. Such factors are constantly operating to limit the increase of any species beyond the supply of food and cover available for it.

By the end of winter only the most alert, vigorous or disease-resistant individuals are left to serve as breeding stock and their number is determined by the late winter-carrying capacity of the area. Thus, the increase of game on a refuge is not cumulative from year to year, but is definitely limited by the supply of food, cover and water which determines the current carrying-capacity of the area. This varies with the seasons, reaching its maximum in the fall.

If the crop is not harvested in the fall by shooting, it is often wasted and lost by other factors. Consequently, the establishment of closed areas or refuges solely for the purpose of eliminating shooting is not an effective method of increasing the game supply. Neither is it true conservation because it does not provide for the best use of the annual surplus crop.

The theory that game will spread out from a refuge and restock a surrounding area is perfectly sound, although its practical application is limited by several factors. The extent of spreading out from a refuge varies with different species according to their ranging habits. A large refuge is required for wide-ranging species such as deer and turkey. It is doubtful if non-migratory species with a limited range, such as quail, will spread out from a refuge widely enough to justify the closing and the management of a large area.

WILDLIFE MANAGEMENT SUPPLEMENTS REFUGES

The environment for wildlife could be improved on nearly every farm by a slight modification of existing farm practices which also would serve the interests of soil conservation and would improve the real value of the farm. On many of the farms where the Soil Conservation Service has been operating, wildlife has increased, because the practices employed have improved the environment for it.

The Conservation Commission hopes to encourage the adoption of soil conserving and game management practices, which are usually identical, by offering its services in planning a comprehensive wildlife management program for each county where the active cooperation of sportsmen, property owners and others is assured and in recommending specific practices for each large farm included in the plan.

The adoption of such practices will be most helpful on farms where land uses have unnecessarily destroyed food and cover for wildlife. On over-grazed farms, for example, small portions may be reserved for wildlife and fenced to keep out cattle. A growth of natural vegetation can be encouraged at fence corners and in gullies without interfering with major farm crops.

The plan of management for all such areas, including refuges in some cases, should depend mostly on encouraging the growth of native plants useful for food and cover or on leaving strips of cultivated grains at the edge of cover. In some cases food strips may be planted or the natural food supply may be supplemented by grain placed at feeding stations as needed. Artificial shelters may be constructed also to serve until natural food and cover have become permanently established.

As a rule, farms where wildlife management practices are employed need not be closed to shooting or posted as game management areas. In some cases, wildlife management practices will be needed on the refuges which are closed to shooting.

SIMPLE METHODS OF IMPROVING ENVIRONMENTS FOR WILDLIFE

The game management practices which may be recommended by the Commission for the improvement of refuges or of other management areas according to the needs in each case, will be limited to simple procedures which can be adopted with but slight modifications of farm practices at a mimimum of cost or effort and which will not interfere with the owner's use of the farm for producing major crops. In most cases, the practices recommended for wildlife will also enhance the real value of the farm, as by preventing erosion and by other approved soil conservation practices. The simple procedures to be recommended may include the following:

1. Leave unharvested strips of grain bordering fields next to good cover. Where cultivated grains and seeds are not available, sow lespedeza in strips bordering fields next to good cover.
2. Leave uncultivated, narrow strips next to hedge rows to permit the hedges to widen and to create safe nesting sites in old grass at the edge of thick cover.
3. Permit fence rows of food and cover-producing shrubs to become established between fields, along road-sides, and encourage thicket growths of wild plum, haw and wild cherry along the edge of woodlands.
4. Increase water supply by building small ponds to hold surface water, selecting sites in gullies where ponds can be constructed easily. For permanent use, including periods of extreme drought when water is most needed, such ponds should be not less than eight feet deep near the dam. When possible, such ponds should be located adjacent to natural cover. Otherwise a strip of cover (hedge row) should be developed leading from the nearest natural cover to the water supply.
5. Develop and indefinitely maintain for food, cover and nesting sites, idle corners, field borders, eroded and unproductive spots throughout the farm. These areas will form the basis for continuous wildlife management on the lands of cooperating farmers.
6. Stop uncontrolled burning of fields and woodlands.
7. Protect dens and leave hollow trees in the woodlands for hole-nesting species.
8. Permit the taking of furbearing animals only during the time when furs are prime.
9. Keep dogs penned during the breeding season of game and prevent at all times the prowling of dogs.
10. Prevent house cats from becoming predators by limiting the number kept on the farm and by eliminating all stray cats.
11. Differentiate between the more harmful and more beneficial predatory hawks and owls and other animals and regulate the number of the more destructive forms.
12. In all upland sections of the state, where erosion is a problem, establish soil conserving practices which will improve wildlife environments as well as increase the real value of the farm. Strip cropping, crop rotations

and terracing are soil-conserving practices which generally improve conditions for wildlife. Gully control, woodland management and idle land development present other means of providing food, cover and nesting sites for wildlife, as well as improving the farm for other uses.

PROBLEMS CONNECTED WITH HARVESTING THE CROP

The program outlined above, if planned wisely on a comprehensive basis—including all species—and if executed intelligently and aggressively, should serve all the interests of wildlife conservation by (1) giving adequate protection to the breeding stock on the refuges to be established and by (2) increasing each annual crop and the permanent supply by the improvement of environments on lands surrounding the refuges.

The program may seem to be inadequate from the point of view of the sportsmen, as well as the property owner, since it includes neither a provision designed to permit a reasonable public use for hunting on the private lands surrounding the closed areas nor an attempt to regulate the public use of private lands for hunting.

The private landowner will always be a most important factor in the game restoration program in Missouri. According to the present trespass law, any person wishing to hunt on the property of another must first secure permission from the landowner. That courtesy, as well as law, has been overlooked and disregarded by too many hunters.

As a result, property owners in the vicinity of large cities and other centers of population have suffered damage to their property as well as annoyance to such an extent that in many cases they have posted their lands as closed to all hunting. In some cases, when such posting has been proven ineffective they have been obliged to organize protective associations for the purpose of enforcing the trespass laws either by the cooperative activities of all the members or by the employment of special patrolmen with authority to represent all the landowners in the strict enforcement of the trespass laws.

The carelessness of many hunters and fishermen as well, in disregarding the reasonable rights of property owners on whose collective good will they must depend for their sport, represents a most serious problem. If abuses continue, it is certain that the aggressive closing of private property to all public use, which has started in some areas, will spread rapidly throughout all counties in the state. When one area is closed, the concentration of hunters and of resulting damage is intensified on the surrounding lands, which leads directly to the closing of adjoining areas.

The Commission is reluctant to undertake to regulate the behavior of hunters if that can be avoided. The procedure is difficult and expensive. But since its first obligation is to conserve wildlife and since the cooperation of property owners is essential to that, the Commission may be obliged to offer additional protection to the property owner at the expense of the hunters if the abuses continue.

HOW TO ORGANIZE A COOPERATIVE WILDLIFE PROGRAM

Cooperative wildlife programs should have the support of all organizations having a direct or related interest, including farm organizations, within the area with which the program is concerned. One such organization or committee representing all organizations should be recognized as the sponsor of the entire program. Sub-committees or local organizations may assume the responsibility for sponsoring and maintaining local sub-projects if coordinated with the general program.

Landowners wishing to initiate a project should prepare a request for cooperation, stating the goal which they intend to reach, the things they are willing to do themselves, and what they would like to have undertaken cooperatively by others, including the Commission. The Wildlife Conservation Agent in the district, the County Agricultural Extension Agents, and representatives of other agencies concerned should be consulted and their cooperation solicited. The request should be forwarded to the Commission, preferably through the organization selected to sponsor the project.

Obligations of Sponsoring Organizations:

Upon receipt of advice from the Commission that the project as outlined has been approved in principle, the sponsoring organization should proceed to appoint a central committee, representing all cooperating clubs and interests, to assume responsibility for coordinating the activities of sub-committees, also to be appointed, and for carrying out the following duties:

1. To make a survey of the entire area to be considered, and to prepare a preliminary plan including a tentative selection of refuges, indicated on a map, and a plan of management for other areas. The preliminary plan to be presented to the Commission for tentative approval.
2. To perfect the organization of law enforcement committees throughout the county to cooperate aggressively with law enforcement authorities in bringing about a healthy respect for conservation laws.

When these steps have been completed and the tentative program approved by the Commission, an open meeting should be called to present the plan for general discussion and for adoption, with such revisions as may seem advisable. At this meeting working committees should be appointed and definite responsibilities assigned to each committee and to each group concerned for carrying out the program as adopted.

Immediately following this meeting representatives of the initiating group, the organization selected to serve as sponsor, and the Conservation Commission should meet together to make a final selection of refuge areas and to plan the details of the procedure to be followed by the various committees in carrying out the complete program.

The sub-committees will then proceed to work out detailed plans for each refuge selected for immediate establishment and for other areas to be placed under management. The Field Biologist will assist in this work. When the final detailed plans have been approved by the Commission, the sponsoring organization will undertake to enter into signed cooperative agreements with the property owners concerned, using standard forms supplied by the Commission.

The sponsor will also record with the Commission an agreement to maintain cooperative contacts with the property owners (during the entire period of the cooperative agreement) and to provide for improvements called for in the wildlife management program as approved. As a rule, the Commission will depend upon the sponsor or the property owner to make whatever improvements may be called for in the wildlife management plan for each area, without cost to the Commission.

When all agreements have been received the sponsor will receive standard posters from the Commission to be placed by the sponsor only on the areas designated in the plan, and in a manner satisfactory to the landowner and to the Commission.

Obligations of the Conservation Commission:

The obligations which the Conservation Commission is prepared to assume in connection with cooperative projects which conform to standard requirements are:

1. To assist in the organization of area programs and to aid coordinating units and sub-committees so that all cooperative projects undertaken may conform to the policies and requirements of the Commission and may be carried out successfully with an efficient coordination of the activities of all agencies concerned.
2. To provide technical assistance in planning wildlife management programs where the interests concerned have completed an effective organization of coordinating units and sub-committees.
3. To furnish standard posters and cooperative agreement forms and to provide as much protection as can be given to the refuges and to the farms under management without disregarding obligations to other similar areas and to other important activities.

Obligations of the Property Owner:

1. To permit the use of his property for carrying out the wildlife management plan as agreed upon jointly by the landowner, the sponsor and the Commission.
2. To permit reasonable use of his property for hunting, except on the portions closed to shooting, and to actively cooperate at all times with law enforcement agencies to prevent unlawful acts.

HOW TO PLAN A WILDLIFE MANAGEMENT PROGRAM

The surveys needed to plan a game management program can be made satisfactorily by appointing special sub-committees to make a preliminary survey and to develop a tentative program for each species of wildlife. Each sub-committee should be composed of experienced hunters who are familiar with the game and hunting conditions in the area under consideration, together with an equal number of practical farmers who are familiar with the landowner problems in the area.

In many cases a sub-committee so composed and properly organized, by using large-scale maps, can prepare a satisfactory preliminary plan, including the selection of tentative areas for refuges (to be indicated on the maps), without making a field-survey except to check points which may be in doubt.

The responsibilities assigned to each such sub-committee should be to consider and determine the status of the species with which it is concerned within the area covered by the survey, with particular reference to:

The quality of breeding stock and its distribution.
Major causes of scarcity wherever that condition exists.
Practical procedures to correct the major factors which limit abundance.
Preparation of a tentative management program to accomplish objectives.

Each sub-committee should present its report to a central committee, whose function it is to coordinate the reports of all sub-committees and to prepare a tentative management program for the entire area under consideration. When the tentative program has been approved and coordinated by the central committee, it should then be submitted to the Commission for consideration, at which time a Field Biologist will be assigned to assist in planning details of the program for final adoption. If necessary, the biologist may be available to assist in starting the work on the preliminary survey, after the organization of proper committees has been completed.

Factors to be Considered in Making Surveys:

The suitability of an area for any species of game or other wildlife may be evaluated accurately enough for practical purposes by any person who is familiar with the food, cover and water conditions on that area and with the requirements of that species at all seasons of the year. Safe nesting cover, including hollow trees for certain species, is quite as important as thick ground cover, which offers protection from the elements and from natural enemies. The protective cover must be interspersed so that the wildlife may reach food and water in safety. Large blocks of one or more given cover types may be almost as unproductive as no cover at all. Consequently, wildlife is found most abundantly wherever the largest variety of cover and food types are found together.

If the survey shows that refuges are needed, the sub-committee should indicate on a map the general location where the establishment of such areas seems advisable.

Selection of Refuges:

The location of refuges should be determined on the basis of existing suitability for the purpose intended, or potential suitability, provided satisfactory arrangements can be made for its improvement, and the relationship to other refuges or closed areas, whether established as part of the state program or independently of it.

Refuges may be established and the use of state posters permitted only in locations where the fish and game laws and regulations are supported by public opinion and likely to be observed. As a rule, the enforcement of "No Hunting" regulations for refuges will have to depend upon the cooperation of property owners in insisting that the trespass laws be strictly observed, which laws require permission of the property owner for all trespassing.

The total area to be closed to shooting by act of the Conservation Commission shall not exceed five per cent of the area of the county. Large refuges for special purposes may be exempt from this provision by act of the Commission in each case.

Posting Refuges:

Refuges should be well distributed throughout the county and should have well-defined boundaries so that posters may clearly indicate the entire area. The standard size of the posters supplied by the Conservation Commission is 9½ inches by 14 inches. For temporary areas, the standard size posters are printed so that they may be fastened to trees or fence posts, using large headed galvanized roofing nails.

All refuges should be thoroughly and clearly posted. Permanent refuges should be posted with signs mounted on boards which should be of 1 inch stock, 10 inches wide, rough sawed, and cut into 14½ inch lengths. (A 16 foot board will cut 13 lengths for posters.) The posters should be mounted on these boards, using a border of ¼ inch half-round, or similar stock cut in lengths 14 inches and 9 inches. Thin wire nails 1 inch in length, with small heads, should be used for fastening posters to the boards. The posters after mounting should be fastened to trees or posts with a 16d galvanized nail in the center and with two 8d galvanized nails at top and bottom. Care should be taken to make sure that the posters are horizontal.

Posters should be placed at intervals of from 150 to not more than 300 feet, especially along major boundaries and roads. Posters should be placed conspicuously at all boundary corners and on both sides of all roadways and points of entrance. If a closed area borders both sides of the road, posters should be placed on both sides, alternating at intervals of approximately 150 feet.

A POSSIBLE APPROACH TO BETTER FARMER-SPORTSMAN RELATIONSHIPS

In a few localities where abuses have become flagrant, experiments are being conducted to determine the most practical method of regulating the use of private lands for hunting, so as to bring about a reasonable use of the property and of the wildlife crop.

The plan being tested is simply to furnish posters with the authority of the Commission, announcing in effect that a permit from the property owner is required for all hunting, fishing, trapping and trespassing. This experiment is being conducted only on a few well-defined solid blocks of approximately 10,000 acres or more. The plan may be extended only under the following conditions:

1. A real need for the plan must be demonstrated.
2. All property owners within a solid area of at least 5,000 acres with well-defined boundaries must be organized effectively and prepared to enforce the "Permit Required" Section of the Trespass Law.
3. All property owners on the area must enter into a written agreement with the Conservation Commission to assist in the enforcement of all fish and game laws and so far as possible to assist in carrying out the simple game management practices recommended by the Commission. Also to permit a reasonable amount of hunting during the open season by licensed hunters requesting such permission, unless they have reasonable cause to refuse. Hunters receiving permits should be required to report the game killed, so that the farmer may have some basis for estimating when the safe crop has been harvested and when no hunting should be permitted.

The procedure recommended to landowners needing this protection is to discuss the matter first with the organization which represents the wildlife conservation interests in the locality. If that organization has not undertaken to prepare a wildlife management program as described in this bulletin, it should be urged to do so and also to consider including some practical plan to provide for better protection of properties which are open to reasonable shooting, leading to better Farmer-Sportsmen relationships.

SUMMARY OF PROCEDURE FOR SPONSORING ORGANIZATIONS

1. Contact with District Wildlife Conservation Agent, the County Agricultural Extension Agent and representatives of other public agencies having a related interest, such as the Soil Conservation Service and the U. S. Forest Service, in order to advise them of the plans and to request cooperation and assistance in preparing a program which will meet the requirements of all.

2. Contact other organizations in the county, including local sportsmen's clubs, farm clubs, garden clubs, and others having a related interest, to discuss the plan and to endeavor to arrange for cooperation and coordination of activities.

3. Contact property owners on the farms and in the vicinity to determine their attitude toward wildlife conservation in general and toward the project in particular, as a basis of estimating the nature and extent of the cooperation and assistance which may be expected.

4. Appoint a central committee, coordinating all groups and interests. Appoint sub-committees representing special interests. Explain the obligations and functions of each committee and the procedure to be followed in coordinating activities. An experienced field man will be available to assist in this part of the program.

5. When the sub-committees have completed their assignments and the central committee has prepared a tentative program for the entire area indicated on a map, present the plan to the Conservation Commission for approval. If the plan calls for making exceptions to the general policies, as outlined above, the conditions which justify recommending the suggested exceptions should be explained in detail. The services of a Field Biologist, experienced in this work, will be made available by the Commission to survey the area with the committees, to assist in planning the details of sound game management practices and to adjust the plan to meet all standard requirements.

6. When the plan has been approved by the Commission, an open meeting should be called to present the program for general discussion and adoption. Also to appoint working committees and to delegate to each group definite responsibilities for carrying out the program as adopted.

Requests for further information should be addressed to THE CONSERVATION COMMISSION, Jefferson City, Missouri.

PUBLICATIONS RECOMMENDED

The following publications are available without cost from the sources listed and are recommended as offering reliable practical information on the general subject of wildlife restoration:

U. S. Department of Agriculture, Washington, D. C.
- Farmers' Bulletin 1719—"Improving the Farm Environment for Wildlife"
- Farmers' Bulletin 1783—"Feeding Wildlife in Winter"
- Farmers' Bulletin 1481—"Planting the Roadside"
- Farmers' Bulletin 1776—"Strip Cropping for Soil Conservation"
- Farmers' Bulletin 1788—"Wildlife Conservation Through Erosion Control"
- B. S.—14—"Planting for Wildlife in the Corn Belt"
- B. S.—37—"The Correlation of Forestry and Wildlife Management"
- Farmers' Bulletin 630—"Some Common Birds Useful to the Farmer"
- Farmers' Bulletin 1682—"Usefulness of Birds on Farms"
- B. S. Circular 61—"Hawks and Owls from the Standpoint of the Farmer"
- Farmers' Bulletin 1644—"Local Bird Refuges"

University of Missouri, Agricultural Extension Service, Columbia, Missouri.
- Circular 343—"Tree Windbreaks for Missouri Farms"
- Circular 399—"Conserving Soil by Contour Farming"
- Circular 368—"Conserving Soil by Strip Farming"
- Circular 393—"Improving Food and Cover for Wildlife on Missouri Farms"
- Circular 356—"Feeding Stations and Shelters for Quail on Missouri Farms"
- Circular 392—"Improvement of Farm Ponds and Watersheds for Erosion Control and Wildlife Production"
- Circular 351—"Farm Ponds in Missouri"

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CONSERVATION BULLETIN

No. 2.

Essentials for More Bobwhite Quail in Missouri

By

HAROLD V. TERRILL

Field Biologist for Northeast
Missouri

STATE OF MISSOURI
THE CONSERVATION COMMISSION
JEFFERSON CITY, MISSOURI

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ESSENTIALS FOR MORE BOBWHITE QUAIL IN MISSOURI

by

HAROLD V. TERRILL

Field Biologist for Northeast Missouri

Fish, Game and Forest Division

MISSOURI CONSERVATION COMMISSION

UNDER normal conditions and barring unusual disturbances such as severe winters, droughts, and over shooting, about the same number of coveys, containing an average number of birds, will occupy the same range year after year. It is only by increasing the number of suitable areas that new coveys can be induced to establish themselves and thus increase the total number of birds for the farm.

Quail seem to prefer small areas containing timber, brush, cultivated cropland and grassland. Large areas of solid cover are not attractive to quail. Since the average covey often spends most of its time within an area of less than 20 acres it is usually possible to make necessary changes to meet their requirements. In a game management program providing these modifications better land use is usually the result.

Requirements for the existence of quail are cover, food and water. These should be so arranged that the birds can have access to each one without exposing themselves to their enemies. These requirements form the basis from which all permanent quail increases must start.

COVER

Quail need four different classes of vegetative cover if they are to thrive in large numbers year after year. These include:

Shelter Cover. Winter or shelter cover is necessary for protection against snow, sleet, and bitter winds. This protection is best furnished by heavy timber, brush piles, closely set thickets, windbreaks, hedgerows, and low-branching evergreen trees.

Shelter cover can be improved by planting trees, fencing suitable areas, preventing fires and restricting excessive cutting and grazing. It is often advisable, in some areas, to provide temporary cover until natural growing cover can be established. This temporary cover can be provided by a fallen tree, left with branches untrimmed on a southern hillside or behind a windbreak if possible. Start young cedar trees, redhaw trees, shortleaf pines, grape and blackberry under the protection of limbs where cattle cannot graze or trample.

Escape Cover. Emergency or escape cover is necessary for protection against housecats, sharp shinned hawks and other predators. Wild plum, rose, blackberry, raspberry, and other briers form excellent tangles and thickets which are effective predator repellants. Dense shrubbery in gullies and ditches and osage orange hedges also furnish quail with excellent protection from their enemies.

This type of cover can be improved by planting wild rose, blackberry, raspberry, redhaw, greenbrier and prickley ash along ditch banks, creeks, fence rows and other waste areas that are not otherwise utilized and give no cash return to the farm in any form. Planting stock of many valuable wild plants may be obtained by collecting the seed and planting it in small nurseries as a conservation group or farm club project.

Feeding Cover. Quail need places to feed and rest where their enemies cannot see them and where they will be protected from the hot summer sun and other unfavorable weather conditions. This feeding and resting cover is furnished by standing corn, cane and sweet clover in fields, shrubbery, wildgrape, greenbrier and other viney tangles along ditch banks, fence rows, ponds and streams.

The winter food supply needs especial attention in a quail management program. This can be supplied by planting food patches and temporarily fencing them from livestock. Leave small strips of atlas sargo, cane, kaffir and corn along the edges of woodlots or other areas known to shelter quail.

Nesting Cover. In order to furnish the mother bird with a safe place in which to lay and hatch her eggs, nesting cover is needed. This is furnished by bluegrass, lespedeza, alfalfa, red top and sweet clover along fence rows, roadsides, ditch banks, or other places where the nests will be close to emergency or escape cover. Nests are almost always located along the edges of fields very close to some form of escape cover.

Ample nesting cover can be provided by the elimination of burning and excessive grazing along fence rows, roadsides and ditch banks. The use of early maturing grains permits the birds to nest in safety after grains are cut.

FOOD

Quail require a variety of foods throughout the year to keep them in a vigorous healthy condition. They appear to prefer feeding upon:

Insects at all times. Enormous numbers of grasshoppers and other insects are consumed by quail in spring and summer months.

Juicy fruits and berries in summer and fall months. These include mulberries, blackberries, dewberries, wild plums and wild grape.

Weed seeds and grain in winter months. Lespedeza, grain sorgums, corn, ragweed, partridge pea and other weed seeds are favorites with quail.

Tender, green leaves and buds in spring. Wild legumes are considered good quail food.

Quail also need gravel with which to grind their food.

WATER

During normal years with plenty of moisture such as rain, snow, and dew, mature quail do not need extra surface water except during dry periods of eight weeks or longer. However, young quail will soon perish without water when the dew fails and when their supply of juicy insects, berries and fruits is cut short by extended dry periods.

An adequate water supply can best be supplied by building ponds at least 10 feet deep in the deepest part and one-half acre in size. Ponds of this size are necessary because records show that in 1934, 1936, and 1937 ponds with depths of less than six feet went dry. These ponds served as death traps not only for the young quail accustomed to using them, but for frogs and fish as well.

FIRE

Burning has very little value on the average farm and should be used only where it can be kept under control. It has been demonstrated that little or no effect toward chinch bug control has resulted from burning but fences have been caused to rust and posts have been destroyed. Repeated burning in pastures destroys the valuable grasses and results in an increase of objectionable weeds. Burning the woodland destroys valuable grasses, shrubs, plants and young trees and causes loss of humus and soil fertility.

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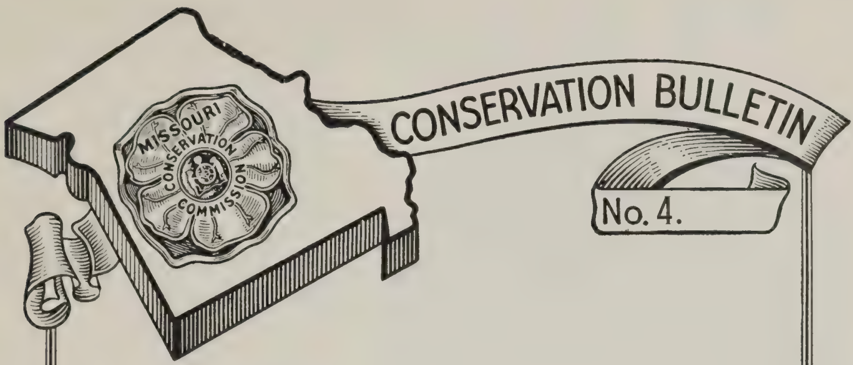

Why Conservation Rules?

a conservation question answered for YOUNG MISSOURIANS «

STATE OF MISSOURI
THE CONSERVATION COMMISSION
JEFFERSON CITY, MISSOURI

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Why Conservation Rules?

Wildlife Conservation Agent Badge

THERE were only a few human inhabitants in the world for thousands of years after it was created. There were many trees, birds, and animals, fishes and reptiles.

Then, as now, there were as many birds and animals and fishes as there was space and food, cover and water available for them. Land and water are essential to wildlife because there must be food to eat throughout the year; cover in which to find shelter and hide from enemies and in which to rear young; and water to drink—and in the case of fishes, a place in which to live.

Early man did not disturb the lands and waters, but harvested from them what they actually produced without human assistance. Later, man became a farmer and tilled the land; a manufacturer, and made things from the products of the land; or an engineer and sought ways of using the lands and waters so that they would produce more immediate returns for the farmer and manufacturer. The natural resources of the world, including the soil, waters, trees, birds and animals seemed plentiful. Man used them for his gain without realizing the need for replacing them or saving any of them for future years.

During the many years in which man has been upon the earth, his number has steadily increased. With more people upon the earth, there arose a need for the use of more natural resources. And man kept right on using these resources without replacing any of them. Suddenly, a lessening of the amount of the resources available to him as an individual was felt. Then he realized that something must be done to save what was yet alive and to restore some of these natural resources to their original numbers, as far as possible.

Men had for some time agreed that wildlife—meaning the birds and animals and fishes not domesticated by man—did not belong to any individual. They were said to belong to the state, which is the organized group of the people. Some of these people realized that their resources were becoming less, and they set out to save some of the wildlife for brood stock. They agreed that while no one person owned the wildlife, each one of them had an interest in it. Any rules, therefore, for anyone using these resources would have to be agreeable to the group. Conservation laws, or rules, were discussed, and at first man was interested only in setting aside certain months of the year as times for not taking wildlife while the birds and animals and fishes were raising their young. Later, as other natural resources became fewer and man cleared trees off the land, dried the swamps and dammed the rivers and made greater use of the land than ever before, wildlife became more scarce.

So that there would be money to employ conservation agents to protect wildlife and show others why and how wildlife could be used wisely, a rule was made that anyone hunting, or fishing outside his own county, should buy a license.

Hunting and fishing and exploitation of land continued until it was learned that closing the seasons on wildlife only during the period for the rearing of young was not enough. Wildlife could not reproduce its kind fast enough under existing conditions. It became necessary, therefore, to place a limit on the number of birds or animals or fishes that one could take each year. This rule was made so that there would be more brood stock left for the next season. Regulations were made protecting the game fishes until they could grow large enough to reproduce their kind.

Men who have made a study of the habits of wildlife have learned that there are three essentials to wildlife management. These essentials are food, cover and water. When any one of these is missing in the place where wildlife is supposed to live, the birds, animals and fishes cannot exist for long. Land and water cannot support more than a certain number of birds, animals and fishes under the most ideal conditions, so there is always a limit to what can be produced.

In some instances, the changing use of the land so completely destroyed the supply of food, cover and water; and some people who either were ignorant of what they were doing or were selfish, took more than their share of wildlife; so that some of the creatures were completely destroyed. Some of the other wildlife creatures became few in number. The State—which is the group as a whole—decided to close the hunting season for those creatures threatened with extinction so that brood stock could be saved.

In order to carry on a program that would restore wildlife in Missouri and allow the natural increase of these natural resources, the citizens of Missouri in 1936 voted to adopt a Constitutional Amendment as a step toward a real conservation program. This amendment is known as the Conservation Amendment. It provides for a Conservation Commission made up of members of the group of citizens interested in conservation of wildlife and forests and employs trained men in forestry and wildlife work to supervise the program.

It can easily be seen, now that we know why the rules are necessary, that conservation rules should be observed. They are not made to take away anyone's liberty, nor to provide special privileges to a few; they are made to provide more hunting and fishing and other forms of enjoyment of out-of-doors for everyone, for many years to come.

The badge of the Wildlife Conservation Agent means that its wearer is a man who has proved himself qualified through merit tests, by experience and training, to assist in the state's conservation work. He is a friend of everyone interested in the program for wildlife conservation.

The respect shown this conservation program will determine the amount of wildlife that will be available for use in the future. While the State—the group—has the responsibility of supervising the conservation program in Missouri, each person has an individual responsibility. This responsibility starts with the observation of the conservation regulations.

Prepared by
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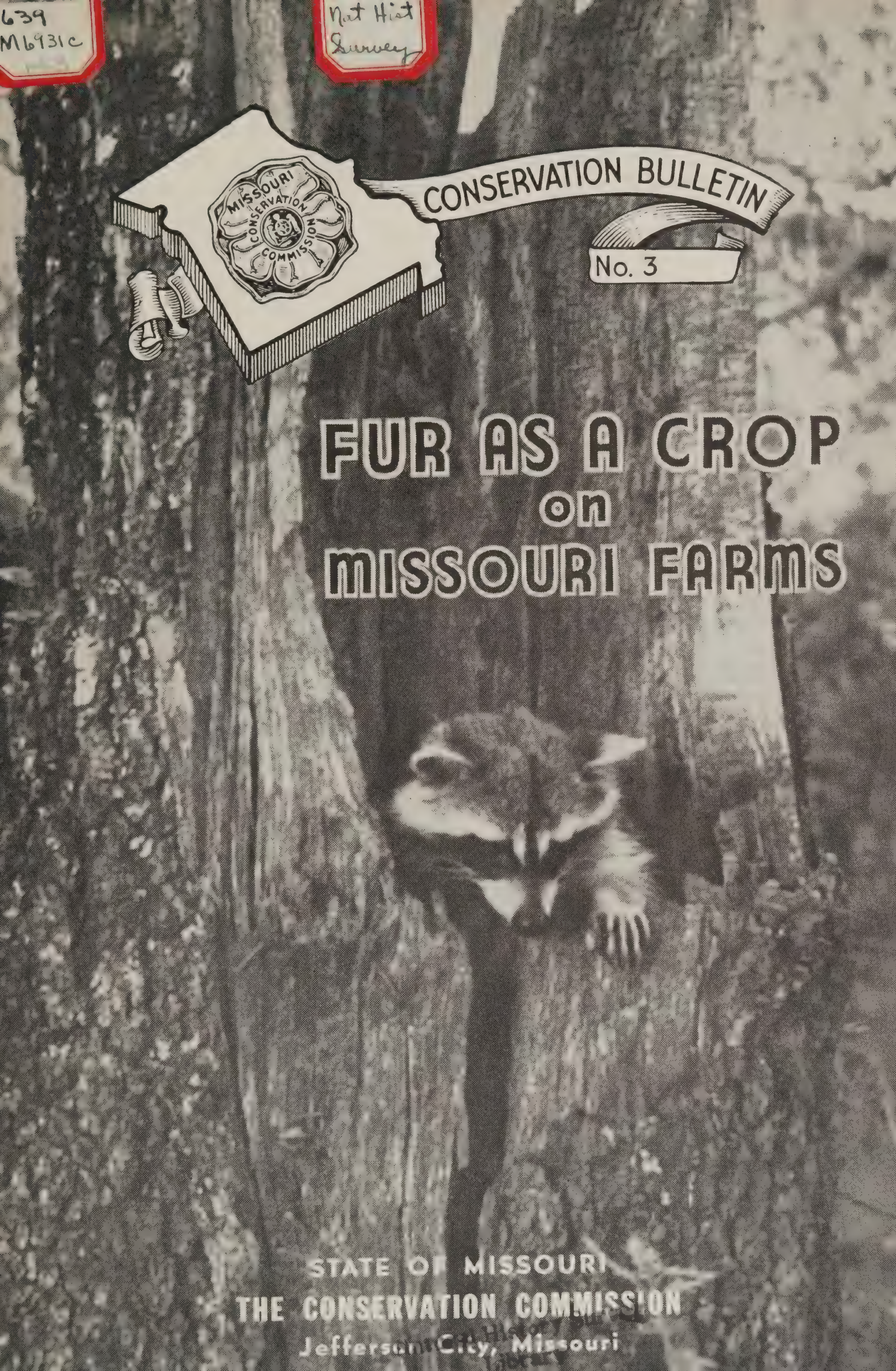

CONSERVATION BULLETIN

No. 3

FUR AS A CROP on MISSOURI FARMS

STATE OF MISSOURI
THE CONSERVATION COMMISSION
Jefferson City, Missouri

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Cover illustration: Raccoon at Big Spring State Park.
A. C. Burrows, photo.

FUR AS A CROP ON MISSOURI FARMS

W. O. NAGEL, ***Research Associate***
Missouri Cooperative Wildlife Research Unit, University of Missouri[*]
Illustrations by Charles W. Schwartz

Fur was Missouri's first important cash crop. The first pioneers penetrated the wilderness to trap furbearers or to trade with the Indians for pelts. Before markets for grain and livestock were developed, settlers who followed the fur-traders to clear and farm the land depended largely on the sale of pelts for their cash income. Even today trapping furnishes part of the income on many farms.

The cash value of this crop has been enormous. In 1810 Missouri dealers handled about $30,000 worth of pelts, and the volume of the trade increased steadily until 1920, when the trappers of the state received $1,300,000 for their furs.[†] Most of the money in the later years went to the farm families, for by this time there were very few professional trappers left.

Since 1920 the harvest has shown a marked decline. By 1934 Missouri produced only about $425,000 worth of pelts, a decrease of two-thirds in 14 years. Lower prices were partly responsible, but the principal reason was that furbearers were becoming scarce because of wasteful hunting and trapping and because their habitats were being seriously damaged. The drought years of 1933-36 hastened the decline, and by the fall of 1937 muskrats, minks, and raccoons had completely disappeared from many regions because there was no longer enough water, cover, and food to support them.[‡]

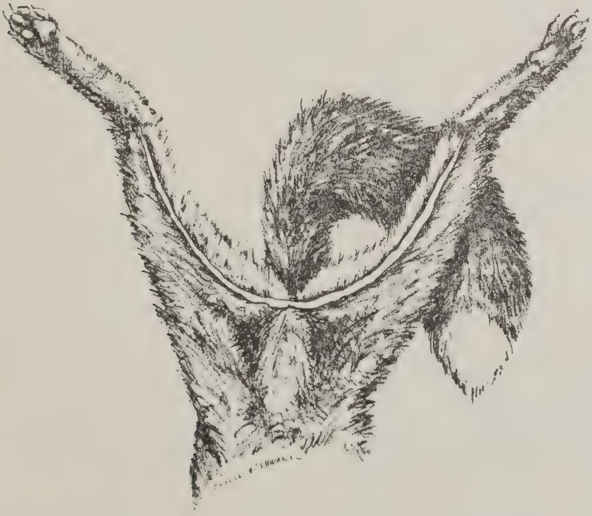

Fig. 1

Position of incision for preparing a cased pelt. Example: fox.

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[*] University of Missouri, Missouri Conservation Commission, and U. S. Fish and Wildlife Service cooperating.

[†] Ahern, Albert M., "Fur Facts." 1922. (Privately printed.)

[‡] Bennitt, R., and W. O. Nagel, "A Survey of the Resident Game and Furbearers of Missouri." University of Missouri Studies, Vol. XII, No. 2, April, 1937.

Yet fur still remains a valuable wildlife resource, even though it is now harvested almost entirely by farm boys on their own and adjoining farms. This bulletin is written not only to show how the fur crop can be made more profitable, but also to show that furbearers may be valuable to the farmer whether they are trapped or not.

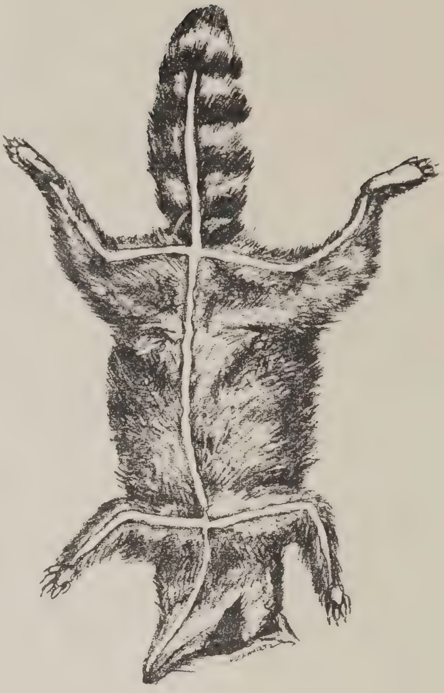

Fig. 2

Position of incision for preparing an open pelt. Example: raccoon.

ECONOMIC VALUE TO THE FARMER

The early settler had only a few head of livestock and could plant only a small patch of grain. When panthers or wolves killed the livestock or muskrats destroyed the little cornfield it was a very serious matter. Under such circumstances it is no wonder that many wild animals were called "vermin" and were considered a part of the wilderness which settlers had to fight in order to make a living.

Now, however, things are quite different. The wilderness has been subdued; the larger wild animals are gone, and livestock is generally safe from attack. Cornfields are much larger, and the small amount of grain taken by muskrats and raccoons is scarcely noticed. Furbearers now actually help the farmer by preying on the mice, rats, and insects which have become so abundant. These crop pests are the vermin now; furbearers have become efficient allies in helping the farmer to control them.

This is well illustrated by the food habits of the skunks: Seton* says that 98% of their food consists of beetles, grubs, other insects, and related forms. Mice, rats, and wild fruits are also taken. Less than 1% of the food is poultry and game. On this basis, using a low estimate of four ounces of food per day for each animal, a single skunk eats in one year about 90 pounds of insects and similar food and less than one pound of poultry and game. Just how much damage 90 pounds of insects might do to crops is hard to guess, but by destroying these a skunk surely more than pays for the pound of poultry and game it may also eat.

The food habits of opossums and civets (spotted skunks) are very similar to those of the large striped skunks. Opossums are also fond of

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*Seton, E. T., "Lives of Game Animals," Vol. II, Parts 1 and 2, Vol. IV., Part 2, 1939.

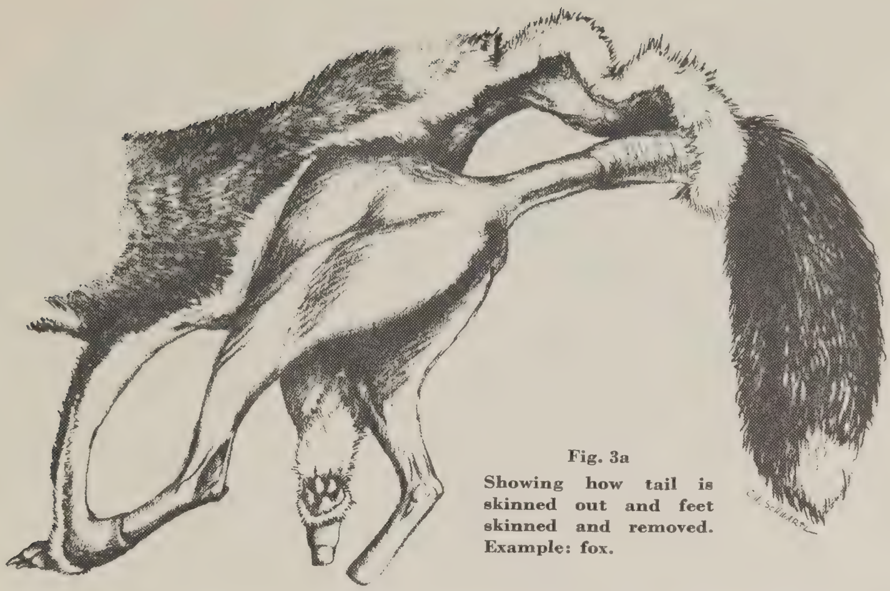

Fig. 3a
Showing how tail is skinned out and feet skinned and removed. Example: fox.

carrion and are helpful in consuming the bodies of dead animals which might otherwise spread disease and which would certainly make the woods and fields far less pleasant than they are now.

Muskrats and minks gather much of their food from the streams rather than from the fields and forests. Therefore they are less directly beneficial to the farmer in the control of crop pests; but the pelts are valuable, and the animals do so little damage to crops or poultry that they are well worth encouraging.

When we consider the benefits they provide—destruction of crop pests, removal of carrion, sport, and cash income—the furbearers are second to no other wildlife group in their value to the farm. As a crop they are unique, for almost any other pay crop costs something to raise and is a drain on the fertility of the soil. Furbearers, on the other hand, cost the farmer next to nothing, benefit him throughout the year, and produce pelts of economic value.

Before these benefits can be realized to the fullest extent, however, there are two changes that need to be brought about: (1) Improved living conditions for furbearers, to increase the populations, and (2) improved methods of taking, preparing, and marketing pelts, to increase the cash return.

IMPROVEMENT OF LIVING CONDITIONS

Furbearers need plenty of the right kind of food, cover, and water. When there is a shortage in the amount or quality of one of these, the land can support only a proportionately smaller furbearer population. Where one or more of these factors is absent, no furbearers can live at all.

There is some good fur-crop land in Missouri, but there is a great deal more land where improvement in food, cover, or water conditions will produce much larger furbearer populations. Then there are the

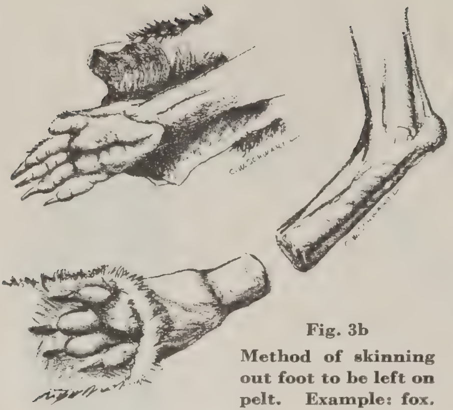
Fig. 3b
Method of skinning out foot to be left on pelt. Example: fox.

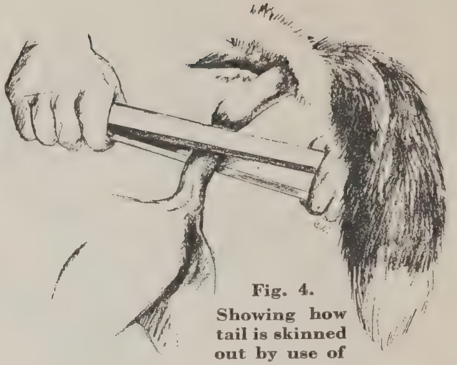
Fig. 4.
Showing how tail is skinned out by use of two splints. Example: fox.

wastelands, present on almost every farm, which now produce no pay crop of any kind: Improvement of raw gullies, bare slopes and banks, and old ponds can result in multiple benefits by planning improvement of habitats for furbearers and other wildlife which will, at the same time, also control erosion and produce timber and grass crops.

Food: Insects, rodents, and other crop pests that skunks, civets, foxes, and opossums eat are usually more than plentiful. However, these animals also need fruits and berries. To supply them, the brushlands, timberlands, and fencerows should be protected from burning, grazing, and unnecessary cutting. Gullies and other eroding areas should be planted with vegetation that will help to control erosion while it produces fruits for furbearers and other wildlife.*

Minks, muskrats, and, to some extent, raccoons depend chiefly on the plants, mussels, crayfish, frogs, and small fish that grow only in productive water areas. There are very few water areas left in Missouri that produce enough of these foods, and this, rather than overtrapping, is the principal reason for the low populations of these animals. The situation must be corrected before the animals will be restored to anything like their former numbers.

There are three ways in which this can be done: (1) Improvement of streams, through control of burning, erosion, and rapid runoff of water in the drainage basins; (2) restoration of lakes, ponds, and swamps that have been drained; and (3) construction of ponds suitable for furbearers as well as for farm use.

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*Westveld, R. H., and Rudolf Bennitt, "Improving Food and Cover for Wildlife on Missouri Farms." Univ. of Mo. College of Agriculture, Ext. Serv. Circ. No. 393, Nov. 1938.

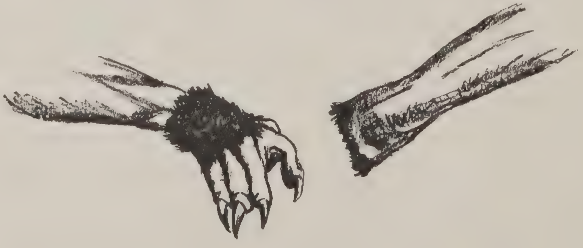
Fig. 3c.
Method of removing pelt from foot. Example: opossum.

The first two measures require the cooperation of all the landowners in the drainage basins toward erosion control and water conservation. Plans for this are already progressing under the sponsorship of the Soil Conservation Service, the Forest Service, the Conservation Commission, and other state and federal agencies. These are long-time programs, and years must pass before they can overcome completely the harm done to the land, streams, and wildlife by lack of care in the past. In the meantime, the third method fits in well with the individual farm program and offers a comparatively quick means of increasing the populations of minks and muskrats.

A good pond is an asset to almost every farm. By the use of a few simple measures it can be made to produce valuable pelts as well as water for livestock, fishing, hunting, and other recreation. To support a paying crop of furbearers, a pond should be at least one-fourth acre in size and not less than eight feet deep in the deepest third. A well-grassed drainage basin of at least three acres; or a steady source of water from a spring or small stream, is needed to keep the water-level fairly constant. If the pond is built chiefly for raising a crop of muskrats, the dam should be made proof against their burrows by putting in a core of rocks, concrete, sheet piling, or creosoted planking. If, however, muskrats are to be excluded, this extra expense will not be necessary. The banks should be planted with arrowhead lily, cattail, sedges, and rushes to furnish food and cover for muskrats and the mussels, frogs and fish on which both muskrats and minks feed. The extra effort will be quickly repaid by the pelts a pond like this will make available.*

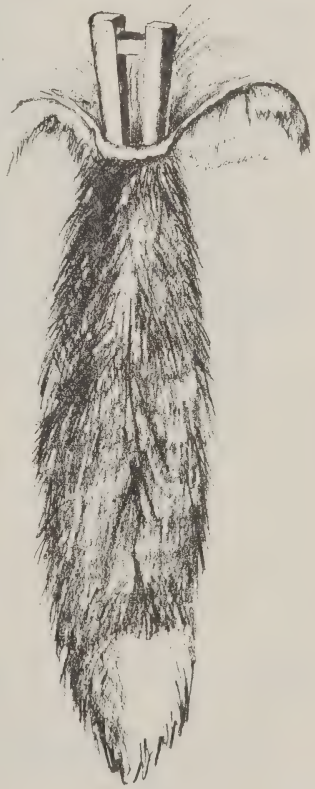

Fig. 5
Use of splint sticks to properly dry tail. Example: fox.

Cover: Most fur animals travel at night, but they seldom work far from cover. In daylight they need hiding places where they can rest and sleep safely. To provide travel lanes and escape cover for upland furbearers, draws and fence rows should be protected from fire, grazing, and unnecessary cutting so that grass, brush, vines, and other food and cover plants can grow. Thickets and brush-patches should be left on the edges of woods and in eroding places; hollow trees

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*Nagel, Werner O., and Marion W. Clark, "Improvement of Farm Ponds and Watersheds for Erosion Control and Wildlife Production," Univ. of Mo. College of Agriculture, Ext. Serv. Circ. No. 392, Nov., 1938.

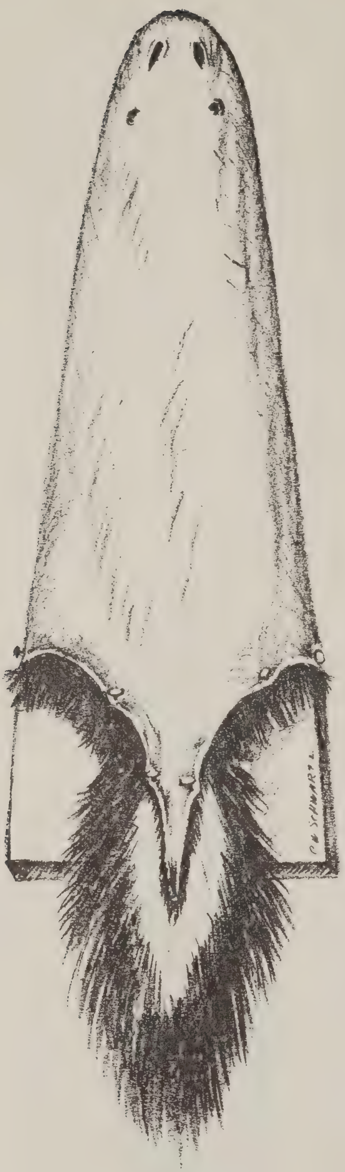

Fig. 6.

Proper method of casing a pelt. Example: skunk.

should not be cut. In the woodlot, brush-piles, logs, and tree-tops should be left to attract furbearers, especially where there is no other ground cover.

Banks and shorelines of ponds and streams should be protected from grazing and cutting; this will permit the development of cover for muskrats and minks. Drifts and fallen trees should never be cleaned out of a stream; minks and muskrats, as well as raccoons, are especially attracted by them.

Dens are a special kind of cover. They are necessary to fur animals as places to hide, raise their young, and escape bad weather. Den trees should never be cut open, and bank dens should never be dug into; for when dens are molested, not only are the inhabitants destroyed, but the number of hiding places is also reduced and the animals are exposed to bad weather and to the attacks of their enemies.

To increase furbearer populations, additional den sites will have to be made available. Bare, unprotected areas are not suitable for this purpose. Grass, standing or piled brush, abandoned buildings, hollow logs, and exposed tree roots should be provided or preserved for den sites in draws, woodlots, fence rows, abandoned fields, and odd corners. Hollow trees and trees that are forming hollows may become den trees some day and should not be cut if this can be avoided. Also, groundhogs should be protected unless they become a decided nuisance; for by digging more dens than they use themselves, these animals provide burrows for a large number of upland furbearers.

Water: Furbearers use water in three ways: They all drink water; they all use the food and cover that water supports; and minks and muskrats hide themselves and their dens in it. Each farm should have at least one good water area, in the form of a pond, stream, or lake.

It is easy to see that food, cover, and water are closely related. It is also evident that when we provide these for furbearers, we are bene-

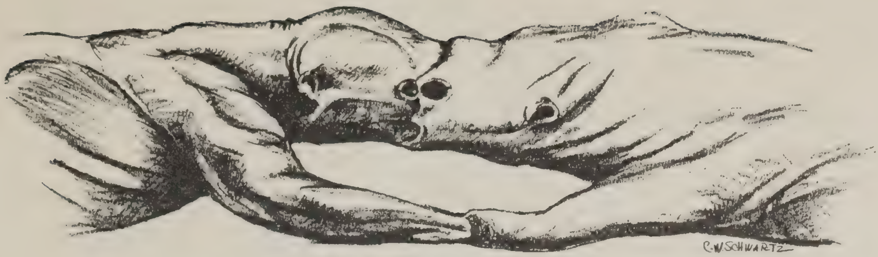

Fig. 7a
Steps in skinning out head. Cut carefully around ears and eyes. Avoid cutting skin. Example: opossum.

fitting the land itself. This is because the production of desirable living conditions for furbearers leads also to erosion control, crops of timber and posts, wild fruits, and water for livestock and recreation.

IMPROVEMENT OF METHODS OF HARVESTING

It is estimated that inexperienced trappers lose from 20% to 80% of the cash value of their catch through improper methods of taking, preparing, and marketing the pelts. In other words, out of every five animals caught, the potential cash value of from one to four of them is wasted. This is a severe penalty to pay for haste and carelessness, especially when by following a few simple rules this loss can be avoided.

When to Trap or Hunt: Pelts are generally at their best during the period set as open season by The Conservation Commission,* but when warm weather extends late into the fall they may not be prime and well-furred on the opening day. In such a case, it is only good sense to wait until at least two weeks of freezing weather have passed before starting to trap, even if this means missing the first few days of the open season, for an unprime pelt is worth only a fraction of what the same skin would bring if prime. The fur of skunks, opossums, civets, and gray foxes is likely to become prime several weeks before that of minks and muskrats; trapping of the two latter, particularly muskrats, should be put off as long as possible.

A good trapper never fails to visit his sets every day. Each year many animals are lost and pelts reduced in marketable value because the traps and catch have been neglected.

At the end of the season all traps should be taken up. Traps that are forgotten and left set may cause the death of dogs, or of furbearers which should be left as breeding stock.†

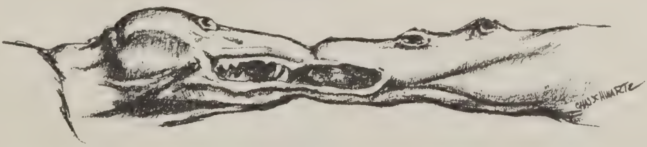

Fig. 7b.
Final steps in skinning out head. Cut carefully around jaws, and lips and detach skin from carcass, leaving nose attached to pelt. Example: opossum.

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*Conservation Commission, "Wildlife and Forestry Code of the State of Missouri," Jefferson City, Mo., 1941, Sections 54 and 54a.

†Laws regulating the setting and labelling of traps can be found in the Wildlife and Forestry Code, Sections 23, 24, 46, 54, 54a, 86, 87, and 96. Every trapper should secure a copy of this booklet when he buys his permit.

SKINNING THE ANIMAL AND PREPARING THE PELT

Since slashes and tears lower the value of a pelt, care must be taken to avoid cutting the skin, either while killing the animal or while removing its pelt. The steps in skinning and pelt preparation are as follows:

1. Make a cut along the back of each hind leg, from the "heel" of the foot to the base of the tail (Fig. 1).

2. Cut the skin around the leg at each foot; work it free from the flesh back to the body.

3. The tails of minks, skunks, civets, and gray foxes are skinned out; those of muskrats and opposums are not. In skinning out the tail, make a slit about an inch long on the underside of the tail, joining the cuts along the legs (Fig. 2). Pull the bony part out with the fingers or with two sharp-edged pieces of wood (Fig. 3).

4. Tie or nail the animal by the hind feet so it hangs at about shoulder height. Grasp the dangling ends of skin and pull the pelt down off the body, turning it inside out, until the forelegs and neck are exposed.

5. Work a finger between the flesh and skin around each foreleg and pull it out to the foot, cutting the skin there. Pull the skin down over the head, cutting the ears close to the skull and trimming carefully around the eyes. Immediately after skinning, the pelt should be stretched. Stretchers may be made of thin boards, with the edges rounded, cut to a smooth taper for about the upper third of the length (Fig. 4). Metal stretchers can be bought from fur houses, and home-made stretchers of stiff wire are good if they are well-shaped. The size and shape of the stretcher should be such that the pelt can be drawn on with just a little effort and when smoothed down will fit without a wrinkle or bulge. A pelt too tightly stretched may, when dry, be difficult to remove from the board without tearing. A pelt too loosely stretched may shrink and be classed a size smaller than the same pelt would have been classified if properly stretched. Finally, the edges of the skin are tacked to the board.

After stretching, all the excess fat and flesh are scraped off with a dull knife. If this is not done, the pelt will not cure well and will then be graded as inferior. The tails of minks, skunks, and civets should be split at the tip to allow the fat to drain off.

The clean pelts should be hung up in a cool, airy, shady place. Curing is complete when the skin is dry, and at this time the pelt should be removed from the stretcher. The flesh side of a dry pelt should be white or pink in color (opossum, skunk, fox, civet, mink) or a light, clear red (muskrat). A blue or very dark skin color or large dark spots show that the animal was killed before the pelt was prime. A yellow, greasy appearance shows the fat was not scraped off well.

All foreign matter, like burrs, dirt, or blood, should be combed or washed out of the fur. This is best done before the pelt is stretched.

A good pelt is prime, well skinned, well stretched, and well cured. All these are necessary before the skin will bring the best market price.

Packing and Shipping:[*] Only dry, well-cured pelts should be shipped. These should be wrapped in burlap and the bundle sewed shut. A shipping tag should be placed inside the bundle and another tag securely fastened to the outside. Both tags should have on them the name and return address of the shipper and his license number. All shipments should be insured.

Marketing: It is always best to deal with a responsible buyer or dealer. The stranger who comes to the farm to buy pelts may or may not be responsible; it is best to play safe. It is also best to know the current market quotations for pelts of the kind and quality on hand. Very few fall into the classification commonly advertised as "No. 1 Extra Extra Large", or even "No. 1 Extra Large", grades, for which fantastic prices are often quoted. In reading such price lists, the trapper should ordinarily consider only the columns headed "No. 1 Medium" and "No. 2 Average"; the prices quoted are what he may expect to receive for prime, well-prepared furs. Unprime, poorly-handled pelts will not bring more than a fraction of these prices. The beginner would do well to seek the advice of some experienced trapper in learning the techniques of trapping fur animals and preparing their pelts, as well as marketing them.

Controlled Trapping: At the end of the trapping season there should always be enough breeding stock left to produce the next year's supply of pelts. When the breeding supply is decreased, the amount of fur available to the trapper also decreases. Eventually the species disappears, and this not only eliminates a source of cash income, but it also deprives the farmer of valuable assistance in crop-pest control. When the animals are few in number—as minks and muskrats are in many localities—it is well to trap very sparingly or not at all until the populations have been built up again through the restoration of food, cover, and water.

Good fur management, which consists of making the best possible use of this valuable resource, is accomplished in the following ways:

1. Restoring furbearer populations by improving living conditions.
2. Limiting the kill to the season of primeness and to the safe surplus of animals.
3. Removing, preparing, and marketing the pelts carefully and well.

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[*] Regulations concerning shipping may be found in the Wildlife and Forestry Code, Sections 86 and 87.

REFERENCE MATERIAL

There are a number of publications of value and interest to anyone wishing to learn more of the habits of the fur animals and how to get the best returns from them. Bulletins not priced are free.

Bennitt, R., and W. O. Nagel. "A Survey of the Resident Game and Furbearers of Missouri", Univ. of Mo. Studies, Vol. XII, No. 2, 1937. Price $1.25.

Clark, Marion W. "Farm Ponds in Missouri", Univ. of Mo., College of Agriculture, Ext. Serv. Circ. No. 351.

Hamilton, W. J. "The Fur-bearers of New York in Their Relation to Agriculture", Cornell Extension Bull. No. 319, Ithaca, New York.

Lantz, David E. "Economic Value of North American Skunks", Farmers' Bull. No. 587, U. S. Dept. Agriculture, Washington, D. C. 1923 rev.

Missouri Conservation Commission. "Why Conservation Rules?" Bull. No. 4, Jefferson City, Mo.

Missouri Conservation Commission. "Wildlife and Forestry Code", Jefferson City, Mo.

Nagel, W. O., and Marion W. Clark. "Improvement of Farm Ponds and Watersheds for Erosion Control and Wildlife Production", Univ. of Mo., College of Agriculture, Ext. Serv. Circ. No. 392, 1938.

Seton, E. T. "Lives of Game Animals", Vols. 1 to 4, Doubleday-Doran, New York. $10.

Taylor Fur Co. "Harvest Your Fur Crop", F. C. Taylor Co., Fur Exchange Bldg., St. Louis, Mo.

U. S. Department of Agriculture. "Improving the Farm Environment for Wildlife", Farmers' Bull. No. 1719, Washington, D. C. 5 cents.

Westveld, R. H., and R. Bennitt. "Improving Food and Cover for Wildlife on Missouri Farms", Univ. of Mo., College of Agriculture, Ext. Serv. Circ. No. 393, 1938.

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Nat Hist Survey

CONSERVATION BULLETIN

No. 5.

Winter Feeding Shelters

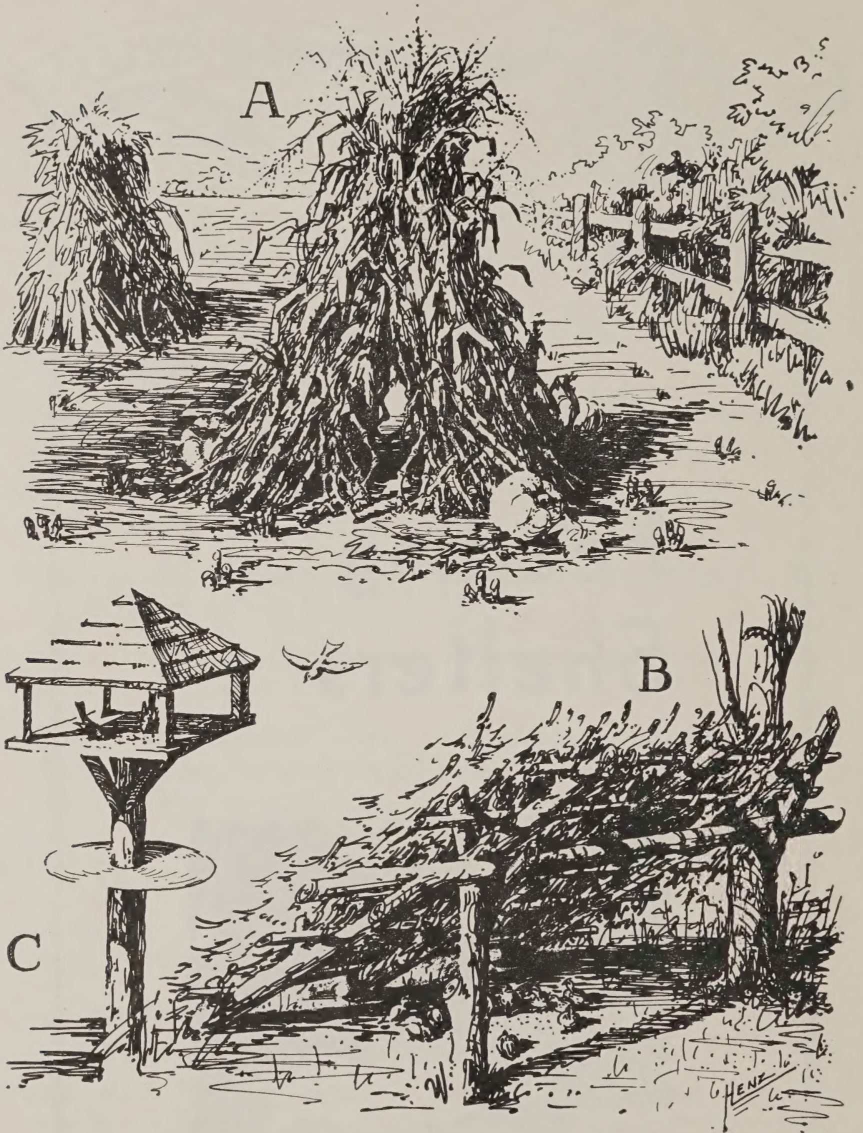
STATE OF MISSOURI

THE CONSERVATION COMMISSION

JEFFERSON CITY, MISSOURI

Natural History Survey
Library

Combination Shelter and Feeding Stations



Three types of easily constructed shelters and feeding stations recommended by the Division of Fish, Game and Forests of the Missouri Conservation Commission for use in Missouri are shown:

A—Tepee shelter made of corn or cane stocks with ample openings at the bottom for rapid escape of birds if predators attack.

B—Lean-to brush shelter, covered with boughs. Open space at back allows additional point of escape.

C—Feeding station for yard or garden. Note the metal guard against cats.

Winter Feeding Shelters

Missouri's boys and girls, farmers, sportsmen, and all nature lovers must enlist themselves in the conservation program and help breeding stocks of game and song birds live throughout the severe periods of our winter season, especially when ice and snow cover the natural food supply. Every bird saved is a potential breeding bird toward next year's bird population.

The best feeding process in Missouri is the use of shocked corn or cane remaining in the field near cover. Shocks can be opened up one by one as necessary, providing a practical self-feeder. (Figure A.)

If loose grain is fed, scrape away the snow and ice to the leaves or ground, preferably under grapevine shelter, brush lean-tos (Figure B) open brush piles, abandoned sheds not used by poultry, or in other protected places. Grain on loose snow sinks out of sight and becomes unavailable.

Locate the feeding shelters near where the birds have normally been feeding and place the feed there. Game birds should not be fed among domestic poultry as they are easy victims of poultry diseases. Feed the birds in the yard if they come there, but keep them away from ground contaminated by chickens.

All shelters intended for use by quail should be located near cover used regularly by the birds and should be constructed with adequate escape openings so birds would not be trapped if predatory animals appear. Stations for quail should be close together; one on each forty-acre tract.

Prairie chickens range from one to five miles and in counties where this bird is found, emergency feeding stations should be provided for them. Corn is suitable feed for these birds. Corn is also suitable for the wild turkey in sections where the mast crop is light.

Cloth and paper bags, filled with grain and hung from tree limbs, fence rails, or brush piles within reach of the birds are satisfactory temporary devices. A small hole in one corner allows the grain to trickle to the ground or to be picked out by the birds. A cone of tar paper fastened over the sack keeps rain and snow off the grain. These can be made up before going to the field and be put into operation with a few minutes work.

Provide grit. Without grit, birds may die with their craws filled.

The city dweller can help with the bird feeding. Many insectivorous birds are found within city limits. Sumach and weed seeds are relished by cardinals and slate-colored juncos. Hairy, downy and the redheaded woodpeckers prefer nut meats. The nuthatch, tufted titmouse, and black-capped chickadee like to eat from feeding trays. Cracked corn, barley and wheat provide excellent feed. The horned larks, lapland longspurs, snow buntings, goldfinches and purple finches like seed of almost any kind. The cardinal is partial to corn as he cracks it himself and extracts the heart. Sunflower seed attracts almost any of the birds.

Suet, sunflower and other seeds or corn meal moulded into a ball and encased in a loosely woven string bag provides an excellent feeding device, as does a small block of wood with suet packed into holes bored into the block. These should be suspended by a string or wire from a tree limb. English sparrows cannot hang on and eat from these, while other birds can. Hang bits of bread, nuts, and suet from discarded Christmas trees.

Groups that can be organized to carry on feeding are:

Rural school children.
Rural mail carriers.
Boy Scouts, Girl Scouts, Camp Fire Girls and similar groups.
Railroad section crews.
Your farmer friends on whose land you have hunted, especially if you furnish a little feed.
Sportsmen and other conservation groups, especially if they appoint a committee to organize the work.

Arrange to have grain ready for feeding as near as possible to feeding points so that snow-blocked and icy roads will not interfere in emergencies.

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